

wherein the bacterium belongs to the family *Acetobacteraceae*, which is located between *Acetobacter methanolicus* and *Acetobacter pasteurianus* as determined by comparison of the 16S RNA gene nucleotide sequence of said strain with the 16S rRNA gene nucleotide sequences of *Acetobacter methanolicus* and *Acetobacter pasteurianus* using molecular taxonomic analysis.

17. (Amended) The method according to Claim 16 wherein the bacterium has the following characteristics:

- (a) an ability to produce xylitol or D-xylulose from glucose;
- (b) quinone type: ubiquinone-10;
- (c) GC content of DNA: about 56 to 57%;
- (d) an ability to produce acetic acid from ethanol; and
- (e) grows in the presence of 30% glucose.

18. A method for producing xylitol or D-xylulose, which comprises:

culturing a bacterium belonging to the genus *Asaia* which has an ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose in the medium, and

collecting xylitol or D-xylulose from the medium.

19. The method according to Claim 18, wherein the bacterium belongs to *Asaia ethanolifaciens*.

20. The method according to Claim 19, wherein the bacterium has a 16S rRNA gene comprising the nucleotide sequence of SEQ ID NO: 1.

21. A method for producing xylitol or D-xylulose, which comprises:

culturing a bacterium having an ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose in the medium, and

collecting xylitol or D-xylulose from the medium,

wherein the bacterium belongs to the family *Acetobacteraceae*, which is located between *Gluconobacter oxydans* subsp. *Oxydans* and *Acetobacter aceti* as determined by comparison of the 16S rRNA gene nucleotide sequences of *Gluconobacter oxydans* subsp. *oxydans* and *Acetobacter aceti* using molecular taxonomic analysis.

22. (Amended) The method according to Claim 21 wherein the bacterium [an isolated microbial strain belonging to the family *Acetobacteraceae*, which] has the following characteristics:

- (a) an ability to produce xylitol or D-xylulose from glucose;
- (b) quinone type: ubiquinone-10;
- (c) GC content of DNA: about 52 to 53%;
- (d) an weak ability to produce acetic acid from ethanol; and
- (e) grows in the presence of 30% glucose.

23. A method for producing xylitol or D-xylulose, which comprises:

culturing a bacterium belonging to the genus *zucharibacter* which has an ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose from the medium, and

collecting xylitol or D-xylulose from the medium.

24. The method according to Claim 23, wherein the bacterium belongs to *Zucharibacter floricola*.